This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An isolated nucleic acid encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:45, wherein said polypeptide acts enzymatically as an enoyl reductase and binds a flavin prosthetic group.

Claim 2 (original): The isolated nucleic acid of Claim 1 wherein the polypeptide is a bacterial enzyme or an active fragment of the bacterial enzyme.

Claim 3 (original): The isolated nucleic acid of Claim 2 wherein the bacterial enzyme has an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:2 comprising a conservative amino acid substitution, SEQ ID NO:4, SEQ ID NO:4 comprising a conservative amino acid substitution, SEQ ID NO:6, SEQ ID NO:6 comprising a conservative amino acid substitution, SEQ ID NO:10, SEQ ID NO:10 comprising a conservative amino acid substitution, SEQ ID NO:12, SEQ ID NO:12 comprising a conservative amino acid substitution, SEQ ID NO:14, SEQ ID NO:14 comprising a conservative amino acid substitution, SEQ ID NO:16, SEQ ID NO:16 comprising a conservative amino acid substitution,

SEQ ID NO:18, SEQ ID NO:18 comprising a conservative amino acid substitution, SEQ ID NO:20, and SEQ ID NO:20 comprising a conservative amino acid substitution.

Claim 4 (original): The isolated nucleic acid of Claim 3 comprising a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3; SEQ ID NO:5, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, and SEQ ID NO:19.

Claim 5 (original): An isolated nucleic acid that hybridizes under standard hybridization conditions to a cDNA comprising the nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3; SEQ ID NO:5, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, and SEQ ID NO:19.

Claim 6 (original): A recombinant DNA molecule that consists of the isolated nucleic acid of Claim 1 and a heterologous nucleotide sequence.

Claim 7 (original): A recombinant DNA molecule that is operatively linked to an expression control sequence, wherein the recombinant DNA comprises the isolated nucleic acid of Claim 1.

Claim 8 (original): An expression vector containing the recombinant DNA of Claim 6.

Claim 9(original): A cell comprising the expression vector of Claim 7.

Claim 10 (original): A method of expressing a recombinant polypeptide in the cell of Claim 8 comprising culturing the cell in an appropriate cell culture medium under conditions that provide for expression of the polypeptide by the cell, wherein said recombinant polypeptide comprises the amino acid sequence of SEQ ID NO:45, can bind a flavin prosthetic group and can act enzymatically as an enoyl reductase.

Claim 11 (original): The method of Claim 9 further comprising the step of purifying the recombinant polypeptide.

Claim 12 (canceled).

Claim 13 (original): A nucleic acid comprising a polypeptide that has at least 80% identity with a bacterial enzyme comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18 and SEQ ID NO:20; wherein said polypeptide binds a flavin prosthetic group and has enoyl reductase activity.

Claim 14 (original): A nucleic acid comprising a polypeptide that comprises at least 12 consecutive amino acids of a bacterial enzyme that has an amino acid sequence selected from the group

consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18 and SEQ ID NO:20; wherein said polypeptide binds a flavin prosthetic group and has enoyl reductase activity.

Claims 15-25 (canceled).

Claim 26 (re-presented - formerly dependent Claim 23): An antibody to the antigenic fragment of ~~claim 23~~ a peptide that has an amino acid sequence selected from the group consisting of SEQ ID NO:46 or SEQ ID NO:46 comprising a conservative amino acid substitution.

Claim 27 (original): The antibody of Claim 26 that is a monoclonal antibody.

Claim 28 (original): The antibody of Claim 27 that is a chimeric antibody.

Claim 29 (original): An immortal cell line that produces a monoclonal antibody of Claim 27.

Claim 30 (re-presented - formerly dependent Claim 15): An antibody to ~~the~~ an isolated polypeptide ~~of Claim 15~~ comprising the amino acid sequence of SEQ ID NO:45, wherein said polypeptide acts enzymatically as an enoyl reductase and binds a flavin prosthetic group; and wherein said polypeptide is not a yeast enzyme.

Claim 31 (original): A method for identifying an agent that can modulate the enzymatic activity of an enoyl reductase comprising:

(a) measuring the enzymatic activity of an enoyl reductase or active fragment thereof in the presence and absence of a compound; wherein said enoyl reductase comprises the amino acid sequence of SEQ ID NO:45 and a flavin prosthetic group, or the amino acid sequence of SEQ ID NO:57; and

(b) identifying the compound as an agent that modulates the enzymatic activity of an enoyl reductase when the enzymatic activity measured in step (a) is different in the presence of the compound relative to in the absence of the compound.

Claim 32 (original): The method of Claim 31 wherein the enzymatic activity is lower in the presence of the compound relative to in the absence of the compound, and wherein the compound is identified as an inhibitor.

Claim 33 (original): The method of Claim 31 wherein the enoyl reductase has the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:2 comprising a conservative amino acid substitution, SEQ ID NO:4, SEQ ID NO:4 comprising a conservative amino acid substitution, SEQ ID NO:6, SEQ ID NO:6 comprising a conservative amino acid substitution,

SEQ ID NO:10, SEQ ID NO:10 comprising a conservative amino acid substitution, SEQ ID NO:12, SEQ ID NO:12 comprising a conservative amino acid substitution, SEQ ID NO:14, SEQ ID NO:14 comprising a conservative amino acid substitution, SEQ ID NO:16, SEQ ID NO:16 comprising a conservative amino acid substitution, SEQ ID NO:18, SEQ ID NO:18 comprising a conservative amino acid substitution, SEQ ID NO:20, SEQ ID NO:20 comprising a conservative amino acid substitution, SEQ ID NO:52, SEQ ID NO:52 comprising a conservative amino acid substitution, SEQ ID NO:54, SEQ ID NO:54 comprising a conservative amino acid substitution, SEQ ID NO:56, SEQ ID NO:56 comprising a conservative amino acid substitution, SEQ ID NO:50, and SEQ ID NO:50 comprising a conservative amino acid substitution.

Claim 34 (original): A method for identifying an agent that can bind to an enoyl reductase comprising:

(a) contacting an enoyl reductase or active fragment thereof with a compound; wherein said enoyl reductase comprises the amino acid sequence of SEQ ID NO:45 and a flavin prosthetic group or the amino acid sequence of SEQ ID NO:57; and

(b) determining if the compound binds to enoyl reductase; wherein a compound is identified as an agent that binds the enoyl reductase when the compound binds to the enoyl reductase.

Claim 35 (original): The method of Claim 34 wherein the enoyl reductase has the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:2 comprising a conservative amino acid substitution, SEQ ID NO:4, SEQ ID NO:4 comprising a conservative amino acid substitution, SEQ ID NO:6, SEQ ID NO:6 comprising a conservative amino acid substitution, SEQ ID NO:10, SEQ ID NO:10 comprising a conservative amino acid substitution, SEQ ID NO:12, SEQ ID NO:12 comprising a conservative amino acid substitution, SEQ ID NO:14, SEQ ID NO:14 comprising a conservative amino acid substitution, SEQ ID NO:16, SEQ ID NO:16 comprising a conservative amino acid substitution, SEQ ID NO:18, SEQ ID NO:18 comprising a conservative amino acid substitution, SEQ ID NO:20, SEQ ID NO:20 comprising a conservative amino acid substitution, SEQ ID NO:52, SEQ ID NO:52 comprising a conservative amino acid substitution, SEQ ID NO:54, SEQ ID NO:54 comprising a conservative amino acid substitution, SEQ ID NO:56, SEQ ID NO:56 comprising a conservative amino acid substitution, SEQ ID NO:50, and SEQ ID NO:50 comprising a conservative amino acid substitution.

Claim 36 (original): A method for identifying a drug that inhibits bacterial growth comprising:

(a) administering the agent of Claims 31 to a bacterial cell;

(b) determining the growth of the cell; wherein an agent that inhibits the growth of the cell relative to the growth in the absence of the agent is identified as a drug that inhibits bacterial growth.

Claim 37 (original): A pharmaceutical composition comprising the drug of Claim 36 and a pharmaceutically acceptable carrier.

Claim 38 (original): An isolated nucleic acid encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:57, wherein said polypeptide acts enzymatically as an enoyl reductase.

Claim 39 (original): The isolated nucleic acid of Claim 38 wherein the polypeptide has an amino acid sequence selected from the group consisting of SEQ ID NO:52 and SEQ ID NO:52 comprising a conservative amino acid substitution.

Claims 40-43 (canceled).